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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Reiner Buettner

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INTELLECTUAL PROPERTY / TECHNOLOGY LAW

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RESEARCH TRIANGLE PARK, NC 27709

EXAMINER

CALANDRA, ANTHONY J

ART UNIT

PAPER NUMBER

1791

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/552,086	<b>Applicant(s)</b> BUETTNER ET AL.	
	<b>Examiner</b> ANTHONY J. CALANDRA	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 1 April 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/27/2006</u> .   | 6) <input type="checkbox"/> Other: _____                          |

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***Detailed Office Action***

The communication dated 4/17/2009 has been entered and fully considered.

Claims 4-8 have been amended. Claims 18-20 are new. Claims 1-20 are currently pending.

***Information Disclosure Statement***

References AD, AE, AF and AI were not considered by the examiner as the references were in a foreign language and no English summary by the applicant was presented. Please see 37 CFR 1.98 (a) (3) (i).

***Election/Restrictions***

Applicant's arguments regarding election restriction have been found convincing, specifically the claims have been amended such that restriction is not proper, therefore the restriction requirement is withdrawn. All claims have been considered on the merits.

***Claim Interpretation***

The examiner has interpreted the claim term depot as a 'deposit of bactericide metal ions and or with ionic pharmaceutical agents'.

The term foil has been interpreted as a thin, flexible, flat sheet.

***Claim Rejections - 35 USC § 112***

1. Claims 1-9 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As for claim 1, the applicant claims 'incorporating within a cellulosic solution . . . agents in such a manner' however, the claim does not point out and distinctly claim by what steps or actions are part of 'such a manner'. As such the examiner cannot determine the metes and bounds of patent protection desired by the applicant.

Claims 2-9 are dependent on instant claim 1.

Claim 17 recites the limitation "cellulosic/polymer " in lines 8, 10, and 12. There is insufficient antecedent basis for this limitation in the claim. It is not clear if the polymer is polyacrylate or if the polymer is meant to be the regenerated lyocell man made cellulosic polymer. Since the order of the polyacrylate addition is not stated in the claim either interpretation could be valid.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).\

3. Claims 1-16 and 18-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Publication 2003/0055146 CHANG et al., hereinafter CHANG.

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As for claims 1, 10, and 14, CHANG discloses a cationic polymer solutions [0009, abstract] that may be crosslinked [0055] which can be mixed in with cellulose fibers including lyocell [0074-0075] to form a cellulosic form such as a wet-laid fabric [abstract]. The form may contain antimicrobials such as silver salts [0103]. CHANG discloses that the form may contain lyocell [0075]. CHANG further discloses that the formulation can be applied to the substrate before drying [0071].

CHANG discloses that the fibers may be dried to control the curing to provide a degree of bonding without significant cross-linking [0064]. The examiner has interpreted without a significant degree of cross-linking to mean 'weakly cross-linked'. Additionally CHANG states that the crosslinking must remain sufficiently low that the dispersibility of the article is not affected [0055]. In the alternative as CHANG discloses the preference of low cross-linking and bonding without significant cross-linking, it would have been obvious to the person of ordinary skill in the art to optimize the amount of cross-linking in the product through routine experimentation. CHANG recognizes the importance of low amounts of cross-linking and recognizes that cross-linking.

As for claims 2, 9, and 15, CHANG discloses that polyacrylate can be present [0076].

As for claims 3 and 11, CHANG discloses silver loaded zeolite [0108] and discloses silver salts [0103].

As for claims 4 and 18, CHANG discloses both zinc and mercury ions [0103].

As for claims 5 and 19, CHANG discloses benzoic acid [0124].

As for claims 6 and 20, CHANG discloses between 0.01-1.0% additives [0124] which is equivalent to 0.1 to 20 kg per kg of cellulose which falls within the instant claimed range.

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As for claims 7, 13, and 16, CHANG discloses cellulose [0074] and fiber containing fabrics [abstract, 0076]

As for claims 8 and 12, CHANG discloses polyester [0060], regenerated celluloses, and polyamides [0074] can be fibers used in the cellulosic form.

4. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over U .S. Publication 2003/0055146 CHANG et al., hereinafter CHANG in view of U.S. Patent 5,853,867 HARADA.

Claim 14 is rejected as per above. CHANG suggests weakly cross-linking the polymers but does not disclose how cross-linked weakly cross-linked should be. The examiner has stated above that it would be obvious to optimize the amount of cross-linking. In the alternate, HARADA discloses the cross-linking agent being present from 0.01- % by weight [column 5 lines 48-51]. At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the cross-linking concentration of HARADA as a starting point for the cross-linking concentration optimization of CHANG. The person of ordinary skill in the art would be motivated to do so to obtain absorbents with excellent water retaining power [abstract].

5. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over U .S. Publication 2003/0055146 CHANG et al., hereinafter CHANG in view of *Rheology of Lyocell Solutions from Different Cellulose Sources* by Collier et al., hereinafter COLLIER.

As for claim 17, CHANG teaches the elements as per claim 1, including lyocell, silver, and polyacrylate. CHANG further teaches silver nitrate [0103]. CHANG fails to disclose how the lyocell is made. COLLIER, discloses common methods for making lyocell providing

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cellulosic material homogenized in N-methylmorpholine-N-oxide monohydrate [pg. 1 column 1], forming cellulosic polymer fibers by spinning [pg. 1 column 2], and removing residual N-methylmorpholine-N-oxide monohydrate from the regenerated cellulosic polymer fibers [pg. 2 column 2]. At the time of the invention it would have been obvious to the person of ordinary skill in the art to use the common and well known method of making lyocell to produce the lyocell needed for the product of CHANG.

6. Claims 10-13 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over 6,660,903 CHEN, hereinafter CHEN, in view of U.S. Patent 5,853,867 HARADA.

As for claim 10 and 11, CHEN discloses a cellulosic form [abstract], said cellulosic fibers can have superabsorbents attached thereto wherein said cationic/anionic superabsorbents may be prepared with antimicrobial factors [column 22 lines 40-55]. CHEN suggests that the superabsorbents used in the product can be those of HARADA. HARADA discloses that the superabsorbent particles, include polyacrylates [column 4 lines 54-67] have cross-linkers present in the range of 0.01-2% [column 5 lines 58-67] which is a weakly crosslinked polymer. At the time of the invention it would have been obvious to the person of ordinary skill in the art to use the superabsorbent weakly crosslinked particles of HARADA in the cellulosic form of CHEN for the simple and well reasoned fact that CHEN states to use the superabsorbent particles of HARADA. The person of ordinary skill in the art would be further motivated to use the particles of HARADA because the particles excel in water absorption, and water retaining power when used in a composite [HARADA abstract]. CHEN is to creating products such as diapers which require high absorbency. CHEN discloses loading antimicrobial silver zeolites into the cellulosic

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core which release the active agent of silver ions [column 21 lines 55-65]. While CHEN discloses silver inside zeolites, the claims comprising language does not limit the use of a silver containing zeolite.

It is the office's position that by definition the product of CHEN/HARADA will eventually reach equilibrium with its environment. At said equilibrium there will be an equilibrium amount of ions/agents released into water.

As for claim 12, CHEN discloses cellulosic fibers [column 11 lines 45-57]. The fibers are intermixed with superabsorbent particles [column 22 lines 40-55] and other compounds such as silver zeolites [column 21 lines 55-65].

As for claim 13, CHEN discloses that the absorbent core is a non woven web of cellulosic paper making fibers, which the examiner has interpreted as a non-woven fabric [column 11 lines 10-25]

As for claims 14-16, CHEN and HARADA teach all the limitations as per above for claim 10. CHEN fails to disclose the use of lyocell. CHEN does disclose that any cellulosic material may be used and specifically discloses Lyocell [column 11 line 18].

As for claim 20, CHEN does not disclose the amount of active agents such as silver added to the core per kg of cellulosic fibers. However, absent evidence of unexpected results it would have been obvious to optimize the amount of silver added to the absorbent cellulosic core through routine experimentation to an amount of active antibacterial agents corresponding to the antibacterial activity desired. The person of ordinary skill in the art would expect that by increasing the amount of silver or other active agents added, the anti-microbial activity of the cellulosic core would increase.

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7. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over 6,660,903 CHEN, hereinafter CHEN, in view of U.S. Patent 5,853,867 HARADA, as applied to claim 10 above, and further in view of U.S. 6,258,368 BEERSE et al., hereinafter BEERSE.

As for claims 18 and 19, CHEN discloses antimicrobial agents such as silver, CHEN also discloses that the agents can be anionic [column 22 lines 40-57]. CHEN fails to disclose either copper or benzoic acid. BEERSE disclose in antimicrobial wipes copper, mercury, zinc, and zirconium can be used [column 9 lines 15-22]. BEERSE additionally teaches that benzoic and sorbic acid is an antibacterial agent [column 2 lines 20-32].

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J. CALANDRA whose telephone number is (571) 270-5124. The examiner can normally be reached on Monday through Thursday, 7:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Anthony J Calandra/  
Examiner, Art Unit 1791

/Eric Hug/  
Primary Examiner, Art Unit 1791